DOCUMENT RESUME

ED 353 935 HE 026 196

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TITLE Higher Education and Employment: The Changing Relationship. Recent Developments in Continuing Professional Education. Country Study: Japan.
INSTITUTION Organisation for Economic Cooperation and Development, Paris (France).
REPORT NO OCDE/GD(92)13
PUB DATE 92
NOTE 59p.; For related documents, see HE 026 190-201.
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Educational Change; Educational Demand; *Educational Trends; *Education Work Relationship; Foreign Countries; Government Role; Higher Education; *Professional Continuing Education; School Business Relationship; Social Change; Universities
IDENTIFIERS *Japan

ABSTRACT

This report, one of a series of country studies on higher education and employment, particularly in continuing professional education, looks at recent developments in Japan. The first of five sections defines the scope of continuing professional education in the context of Japanese economy and society, and sets forth a theoretical framework for analyzing its structure. This covers modes of continuing education, and the Japanese model of employment and training. Section 2 summarizes various forms of employed college graduate training in business firms and government agencies which can be classified into initial training programs, mid-career training and self-development plans. Section 3 looks at the challenges to in-firm training: technological change, the shift in the role of college graduates in firms and the erosion of lifetime employment. Section 4 discusses recent changes in higher education institutions to facilitate continuing graduate education. A final section recaps the analysis of the Japanese system which continues to be based on the corporate model of in-firm, task specific training while economic and social changes are bringing change to this pattern. Appended are 7 tables of data and a 17-item bibliography. (JB)

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HIGHER EDUCATION AND EMPLOYMENT: THE CHANGING RELATIONSHIP

RECENT DEVELOPMENTS IN CONTINUING PROFESSIONAL EDUCATION

COUNTRY REPORT - JAPAN

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Recent Developments in Continuing Professional Education

COUNTRY STUDY: JAPAN

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HIGHER EDUCATION AND EMPLOYMENT: THE CHANGING RELATIONSHIP

Project iii): Recent Developments in Continuing Professional Education

COUNTRY STUDY: JAPAN

This report is one of a series of country studies prepared in the framework of the OECD Education Committee activity on Higher Education and Employment: The Changing Relationship. It deals with one of the three main topics covered by this activity, Recent Developments in Continuing Professional Education. Together with other country studies on this topic, it provides the background information for the preparation of a Secretariat general report that will be published by the OECD in 1992.

Country studies and general reports are also being made available for the other two projects included under this activity: The Flows of Graduates from Higher Education and their Entry into Working Life; Higher Education and Employment: The Case of the Humanities and Social Sciences.

The present country study on Recent Developments in Continuing Professional Education has been written by Motohisa Kaneko of the Research Institute for Higher Education, Hiroshima University. The views expressed are those of the author and do not necessarily commit the national authorities concerned or the Organisation.

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INTRODUCTION

With the rapid structural changes in economy and society, the relation between higher education and employment has been shed fresh lights as a critical issue. The Education Committee of OECD thus launched in 1988 an international research activity entitled "Higher Education and Employment: The Changing Relationship." Later, it was decided that the activity would comprise three specific areas of study: (i) The Flow of Graduates from Higher Education and Their Entry into Working Life; (ii) The Case of the Humanities and Social Sciences; and (iii) Recent Developments in Continuing Professional Education.

In order to respond to the OECD initiative from the Japanese perspective, the Research Institute for Higher Education (RIHE) at Hiroshima University organized in 1990 a research project enlisting leading specialists in the field from both inside and outside. The participants included: Mr. Akira Arimoto (RIHE), Mr. Shogo Ichikawa (National Institute of Education), Mr. Hideo Iwaki (Nihon Women's College), Mr. Motohisa Kaneko (Project Coordinator, RIHE), Mr. Johji Kikuchi (Osaka University), Mr. Kazuyuki Kitamura (RIHE/Institute for Multimedia Education), Mr. Masayuki Kobayashi (Hiroshima-Shudo University), Ms. Machiko Osawa (Ajia University), Mr. Masao Seki (Project Representative, RIHE), Mr. Morikazu Ushiogi (Nagoya University), Mr. Masakazu Yano (Tokyo Institute of Technology), Mr. Keiichi Yoshimoto (Japan Organization for Studies of Labor). The group is scheduled to complete its final and comprehensive report by 1992.

The present paper was written as one of the progress reports by the present author in consultation with the project participants. Also, generous assistance and advices extended by the administrative officers at the Ministry of Education, Science and Culture, Japan, are gratefully acknowledged. The views expressed here, however, are strictly those of the author. Last but not least, I am grateful to the editorial assistance extended by Ms. Mariko Sakamoto.

Motohisa Kaneko

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7. Extension Courses of STS
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1 CONTINUING PROFESSIONAL EDUCATION - THE CONCEPT AND BACKGROUND

This section defines the scope of the central issue - continuing professional education - in the context of Japanese economy and society, and sets forth a theoretical framework for analyzing its structure.

1.1 Modes of Continuing College-Graduate Education

1.1.1 Before embarking upon the analysis, it would not be entirely worthless to make a short discourse for discussing some conceptual problems. Especially pertinent in this context is the definition of "On-the-Job Training" (OJT hereafter) and "Off-the-Job Training" (Off-JT). In the case of independent professions, continuing education can be discussed in connection with the individual itself. For example, retraining of a medical doctor will be demanded by himself and supplied directly to himself. In contrast, a college graduate working in a business firm will be given training by the employer. The point of analysis will be then the relation with the firm that he is working for. But what have been implied by OJT, extends beyond the dimension of time or place. OJT tends to be about the subjects closely related to the particular job or firm, and it is also paid by the company in the form of foregone work.

1.1.2 To make it clearer, it may help to consider the following framework.

	Corporate	Individual
Time and Site	On-the-Job	Off-the-Job
Content	Firm-Specific	Field-Specific
Cost Paid by	Employer	Worker

The framework shows that worker education encompasses a wide spectrum of forms. At the one extreme, there are training on specific skills and knowledge useful for the particular workplace or firm, conducted in the place of work. The cost of training, both in the form of foregone productivity and direct cost, will be born by the firm. We may call the extreme case

the Corporate Model of continuing graduate education. At the other extreme, worker may enroll in school, possibly considering potential new employment opportunity, on his own time and financial resources. This may call the Individual Model. But between those two extremes, there are various forms of in-career education.

1.1.3 Cutting across these varieties of education, it may be useful to set up a theoretical frame of the "market" of educational opportunities. A theoretical difficulty is obvious when we talk about the "Demand" and "Supply" of further professional education. In the first place, who "demands" further education? Considering that the needs for continuing professional education is talked about from the perspective of changing working requirements, it is tempting to attribute the demand to the employer. In fact, in the Corporate Model the demand appears to arise entirely from the employer. Still, education itself takes effect on the individual workers themselves. Also, corporations can not always force individual workers to take training. In the case of Individual Model, the demands for the opportunity of continuing education arise from individual workers. The corporation would demand the working skill and knowledge thus acquired.

1.1.4 The concept of "supply" of continuing education, on the other hand, appears relatively straight-forward. The corporation may provide it (in-house training/education). In the extreme case of the Corporate Model, the training or education is bundled together with productive work. In some other cases the training division of the corporation provides the training. Sometimes it hires outside agency to give in-house classes. In the Individual Model, education or training may be given by independent education institutions, including education firms, various types of independent schools, and various types of higher education institutions.

1.2 Scope of the Issue

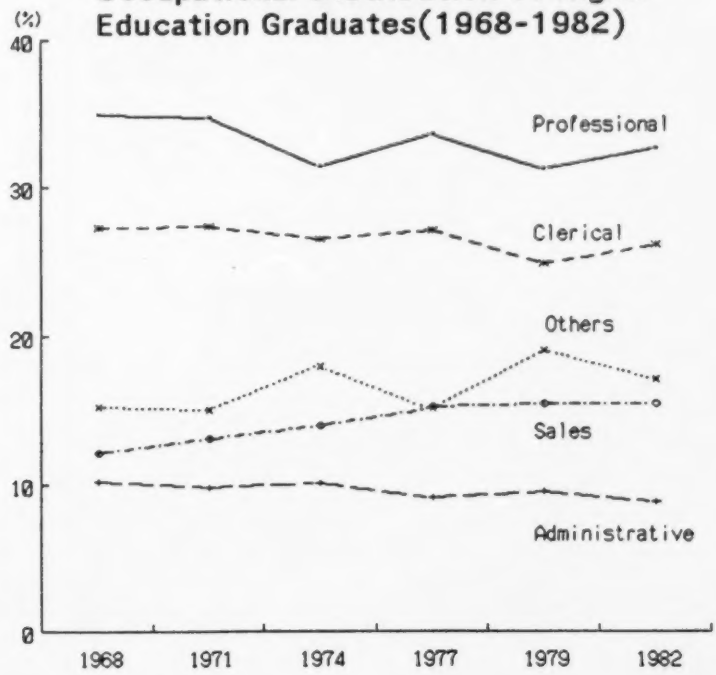
1.2.1 The present report focuses upon the education and training of the graduates from higher education institutions in general. In other words, it does not confine its scope to "independent professions" such as lawyers and medical doctors. On the other hand, the analysis encompasses education and training for the workers who are working in business not necessarily called "professionals."

1.2.2 The conceptual difference between "professionals" on the one hand, and the workers with higher education on the other, deserves particular attention when studying the relation between education and employment in Japan. Indeed, Figure 1 and Appendix Table 1 indicate that only one third of the working higher education graduates are classified as "professionals" in the Labor Force Survey. Even including "managerial" workers, the proportion barely reaches the 50-percent level. The rest are classified as in the "clerical," "sales" or other occupations. Moreover, the proportion among college graduates of those classified as professional and managerial workers among college graduates have been even declining over time. By confining the scope of the analysis to only those who are classified, a significant proportion of college graduates would be excluded from the scope of the analysis.

1.2.3 Indeed, the conceptual relation between professionals and college graduates involves issues that extend beyond the matter of terminology. Rather, it has direct relevance to the nature of the structure of employment and training in Japanese business firms and public organizations. That will be discussed systematically in subsection 1.3 below.

Figure 1

Occupational Distribution of Higher Education Graduates(1968-1982)



Source: Labor Force Survey

1.3 The Japanese Model of Employment and Training

1.3.1 Employment practice in Japan has been said to have particular characteristics, such as permanent employment system and strong "loyalty" to company. Some authors even advance to speak about the "Japanese model" of employment. It will be discussed later that many of those popular concepts derive from partial and superfluous observations and often inaccurate. It is particularly misleading to connect it to the cultural tradition of benevolent patternalism deriving from traditional Confucius ideology and feudal tradition. Nonetheless, it will be useful to describe the "Japanese model" as the starting point of analysis. Probably the most translucent theoretical analysis made by foreign author is that of Ronald Dore. He [1987, p.28] called it a "Organization-oriented," as contrasted to "Market-oriented," system of employment.

1.3.2 Major factors of the "Japanese Model" may paraphrased as below:

(a) Career-long employment. Once a typical worker is employed by a firm, he will not change the employer until retirement. Associated with the practice of the length-of-service and age-wage payment system. The wage level is primarily dependent upon the length of the serivce in the same firm and age, not upon the type of job. The wage profile for a typical worker over his life-course draws a steep slope, representing low wage rates at entrance level and high rates towards retirement.

(b) Absence of functional labor market for adult workers. Because of the life-long employment, fierce competition takes place among prospective school leavers for better employment opportunities. Students at the final year of school go through matching process with prospective employers, and by the time of graduation, settled down with a particular employment. In April 1, they are employed by the firm. In this sense, there is a fully established job market among prospective fresh graduates from schools. On the other hand, the lack of ability of the workers already employed make the mid-career labor market practically not functioning. Consequently, labor unions tend to be organized for workers in a particular firm. Trade unions, organized along the line of particular profession and across-the-firm, are non-existent.

(c) Importance of In-Firm Training. Because of the reluctance against employing workers with experiences, business firms have to train their own workers for needed skill. At the same time, the firms face relatively little risk of losing the trained workers to other firms. "...the so-called 'key workers' who receive successive training and retraining over the duration of much of their working careers within a given enterprise. These workers were not trained to their fullest capacities for any one type of work but were available within a company for ready transfer to work a variety of tasks as required by changing technology. This system provided the enterprise with a high degree of flexibility in utilizing the workers permanently in its employment." [Levine and Kawada 1980, p.114] Therefore, there is positive incentive for in-firm training.

Thus the "Japanese Model" incorporates in-firm training as an integral part of its structure.

1.3.3 Dore argues that, whilst the "Market-Model" is efficient in allocation of resources, the "Organization-Oriented" system is superior in inducing efficiency in more subtle way but no less important in the process of production and deliveration of services.

> ...The efficiency which comes from paying attention to the work you are doing and not boring holes in the wrong place and having to scrap an expensive work-piece, from calculating just how many machining blanks you need to have in the stockpile to avoid having the machinists run out of work to do, from the conscientiousness that sees to it that deliveries to keep up that stockpile to arrive on time. It is the efficiency which ensures that a small-businessman's application for a loan is processed by the bank in three days not three weeks, that hospitals do not get patients' papers mixed up and amputate the leg of an appendicitis case. It comes from making the right decisions because you have done your homework, got hold of all the market forecasts, collected as much information on your competitors' development plans as possible. It comes from caring about the quality of the work you produce and the service you give your customers, and from giving thought to how you can improve them. [Dore 1987, p.17]

This concpet is somewhat similar to what Leibenstein called "x-efficiency."

1.3.4 It should be noted, however, that the Japanese Model has been a subject of serious academic criticism from various aspects. The points of criticisms may be summarized in three points as below:

(a) Lifetime employment is not traditionally Japanese. Popular impression among foreign observers tends to attribute lifetime employment to traditional Japanese value deriving from Confucius ideology or feudal social structure. But studies on historical development of labor relations in Japan concur that labor turn-over was high in the Meiji period. It was out of the needs of large scale plants to secure trained workers that the protected employment of "key workers" started. After World War I the Japanese economy experienced an economic boom and major Japanese firms faced shortage of skilled labor, and consequently a series of labor piracy and labor dispute. It was then that career-long employment started in those companies [Levine and Kawada 1980, p.115]. The system was then fortified partly as a means to confront to rising labor unionism, and under growing state control towards the Second World War. In the postwar periods growth of major corporations in employment made it possible and necessary to maintain the practice.

(b) Lifetime employment applies to only a part of Japanese workforce. Taira [1970] found that worker mobility has been substantial in the prewar period. Even though lifetime employment emerged since the prewar period. Among the workers who entered major factories in 1924, less than 20 percent remained in the same firm nine years later. After reviewing studies on labor mobility, Levine concluded as follows: "For all the gaps in the evidence as to labor market mobility - elsewhere as well as in Japan - there is ample evidence to indicate that the concept of lifetime employment does not describe the career of a typical Japanese worker. Even the oft-heard claim that one-third or so of Japanese wage and salary workers "enjoy" lifetime employment is much in need of proof. Perhaps the typical worker in Japan does not change jobs as many times across a working life as does his or her American counterpart, but relatively few will remain the same employer from first to last career pay day... Lifetime employment may well be the dream of many, even most, Japanese (and perhaps Americans). But to the extent that the notion describes actualities rather than ideals, it is valid only for a limited fraction of the labor force - some of those employed in the public sector, and some of those employed by large-scale private corporations." [Levine 1983, p.31]

(c) The "Japanese Model" may not be even uniquely Japanese. Koike [1981, pp.14-15] compared the labor statistics in Japan, in the U.S. and in a few EC countries and concluded that there are substantial proportion of workers in the U.S. and in the European countries that stay with the same employer for their entire working life. Particularly, the tenure of white collar workers in large scale corporations showed small, if any, differences in each countries. He argued that the observed high rates of mobility found outside Japan was accoutned for a small fraction of particularly highly mobile group in the labor force. Meanwhile, the relatively low mobility among the blue-collar workers in Japan helped to depress the over all rate of mobility in Japan. Koike [ibid., pp.48-85] also demonstrated that the steep wage profile can be found also among white collar workers in the U.S. and European countries. Japan was only unique in that blue-collar workers also present similar profile.

1.3.5 It is beyond the scope of this report to analyze systematically the validity of the "Japanese Model." Suffice it to note at this point that the on-going conception of the Japanese model of life-time employment and the underlying worker loyalty demands critical reevaluation. Nonetheless, it appears to be true that at least among college graduates, the combination of internal promotion and in-firm training plays a critical role in acquiring professional skills and knowledges. Even that, however, may be changing now as discussed below.

2 Training of College Graduates

This section summarizes various forms of employed college graduates in business firms and government agencies. They can be classified into three categories: (i) initial training programs; (ii) mid-career training; and (iii) "self-development" plans.

2.1 Recruitment and Initial Induction Training

2.1.1 Most of the fresh employees from college are formally employed by employer on April 1, when they attend the entrance ceremony of the business firms and government agencies every year. The following initial training program for the newly employed is the most common type of training conducted by almost all organizations employing college graduates. A recent survey of 407 large scale corporations showed that 98 percent of them have some form of initial program (Table 1), the proportion being much greater than any other type of in-firm training. Other surveys indicate that small and medium size corporations also conduct such training. Government agencies also hold extensive induction training programs. Also, initial training is considered to be the most significant training of employees. A survey on top executives showed that 52 percent of top executives regarded the induction training "very important." [Tohyama 1983] The rating was higher than any other type of training including manager training (45 percent).

Table 1

Existence of Training Programs
- 407 Large Scale Corporations -

(%)

	Total	Yes	No
Initial Induction	100.0	98.3	1.7
Technician Training	100.0	46.9	53.1
Engineer Training	100.0	50.1	49.9
Sales Training	100.0	62.4	37.6
Executive Training	100.0	87.2	12.8
Middle/ High Age Workers Development	100.0	31.9	68.1
Others	100.0	13.0	87.0

Source: Keidanren Table V-1.

2.1.2 In most cases an initial training program consists of two phases. First is one-to-two weeks of introductory seminars. The second phase is the induction training that span from one month to sometimes six months. Table 2 presents the outline of such a program undertaken in an electronics manufacturer.

Table 2

Example of Induction Training
- Case of Sony Electronics -

April 2	ADMISSION CEREMONY
April 2 - 9	INDUCTION SEMINAR Classroom Lectures
April 10 - September 6 (For Both Administrative and Technical Recruits)	INDUCTION TRAINING I
April 10 - 27	Basic Training
April 10 - 13	Lectures on Basic Electronics, Analog and Digital Circuits
16 - 17	Planning of Exercise Project
18 - 26	Exercise Project
27	Review
May 1 - July 7	Plant and Sales Practicum
May 1 - 31	Plant Practice
June 1 - 28	Sales Practice
June 29 - July 6	Customer Service Practice
July 9	Administrative recruits are given assignment.
July 9 - September 7 (Technical Recruits only)	INDUCTION TRAINING II
	Classroom Lectures on Basic Technologies, Computer Science, Outline of Major Products
September 7	Technical recruits are given assignment.

Source: Kyoiku-Kunren Jitsureishu (Examples of Training and Education) 1989, p.239.

2.1.3 The introductory seminar, in a sense, starts at the entrance ceremony. In most cases the chief executive of the employer would give short presentation in front of all the fresh recruits of the year. In the following introductory seminar, that would last from a few days to two weeks, the new recruits are divided into groups and given lectures. Typically, the subjects include the outline of the corporation, regulations and manners and etiquette. The emphasis is laid upon initiating the fresh recruits for the new life as a responsible organization man. In the case of the electronics

manufacturer, fresh recruits for clerical jobs, mainly female high school and junior college graduates, complete initial training at the end of this phase and given assignment. Almost all employers would give introductory seminars, and the form and the length of the seminar do not vary much from firm to firm.

2.1.4 Induction training starts after the seminar. It involves some class-room lectures and introductory OJT at various departments of the company. In our example, induction training takes four-months and divided into two sub-phases. In the first subphase, lectures are given on basics of physics related to the product and the new recruits are given experimental projects. The recruits are then sent to one of the firm's factories, where they experience the work at shop-floor for about four weeks. In the following four weeks the new recruits are sent to local offices and experience sales and customer-service jobs. All the college graduates, recruited for either non-technical or technical careers, are involved in the training up to this point. But non-technical recruits complete their training at this point and they are assigned to a job. Technical recruits, on the other hand, enter the second phase of induction training which would take another two months. By the beginning of September, the induction training is completed and the technical recruits are given assignment.

2.1.5 While the form and the length of introductory seminars do not vary much from firm to firm, the variation of induction training by individual firm is substantial. Some companies lay emphasis on classroom learning, while others concentrate almost exclusively on experiencing various jobs in the company. Its length also varies substantially. In general, induction training programs in corporations without production sections, such as trading companies or banks, tend to be shorter than those in corporations with such sections. It has to be also noted that, while introductory seminars are mainly geared to inflicting upon abstract and mental aspects of the fresh recruits, induction training tends to be aimed at providing specific knowledges and experiences related to education.

2.1.6 The basic characteristics of the initial training programs as a whole is their emphasis upon company-specific experiences and knowledges. To a survey asking the purposes of

initial training programs (plural choice allowed), 70 percent of the sampled firms indicated "knowledge and skill related to the work." Other items frequently indicated were "motivation to work" (44 percent), "understanding of the work organization" (41 percent), and "ability of personal communication" (34 percent). On the other hand, "specialized knowledge" were indicated by only 28 percent of the sample [Tohyama 1983, p.54]. It is evident that the firms' major goal was aimed at motivational factors and the specific knowledges that are necessary and related to the firms' activity.

2.2 Mid-Career Training

2.2.1 Mid-career training comprises three elements; first, On-the-Job Training (OJT hereafter), second, strategic job rotation, and the training programs set before or at the time of promotion to higher status. Thus mid-career training is, in a sense, a continuation of initial training.

2.2.2 OJT has long been the basis of in-firm training, either for production or white-collar workers in Japan as in other countries. Dore [1989, p.90] argues, however, that the Japanese model of employment practices renders particularly favorable environment for OJT to be effective. The lifelong employment practice induces active "participation" in improvement of productivity, thus creating motivation for the seniors to teach and the juniors to learn. It also has a realistic aspect. Since achievement of OJT has been regarded as one of the tasks of the work place, participation in OJT constitutes a factor in assessment of the performance of both juniors and seniors. It should be also noted that OJT are sometimes organized into informal study groups. A popular example is Quality Circle (QC), which is usually organized by production workers. Similar activities, however, are organized among graduate engineers.

2.2.3 But the organizational value of OJT in Japan can not be fully achieved without the practice of job rotation. Koike [1984] argued that Japanese production workers present a pattern of career that is "deeper" and "broader" than their counterparts in the United States or in European countries. It is deeper because of age-based promotion practice, and it is broader because workers are exposed to various jobs in the firm with the steps of promotion. The experience of various jobs helps the workers to understand the working of the firm as a whole. Koike also argued that the wide experiences of the

workers have proved particularly effective when the new technologies were introduced and job-organizations have to be rearranged frequently. It should be noted that such a pattern is found only with core production workers in large scale firms. But such a pattern can be found with college graduates.

2.2.4 Typically, a college graduate from the social sciences or humanities departments would be hired by business firms without clear job specifications. Then he would be intentionally exposed to various functions of the firm which do not necessarily have direct relations to their training. The underlying idea for such a practice is to create a worker with adequate understanding of the firm. As the career advances he would be promoted to some form of managerial status, but it is considered more as a position in the power hierarchy rather than as a specialized job. Exposure to various aspects of the corporate function facilitates one to be an effective manager.

2.2.5 It should be noted, however, that the use of job rotation differs greatly by the size of corporation. Table 3 reports the results of a Ministry of Labor survey regarding corporate policies about job rotation. It is evident from the table that the corporations are more likely to rotate college graduates, and more positive about its value as training, than high school graduates. It is also apparent that administrative recruits are more likely to be the subject of positive rotation. But the differences by corporate size are far more decisive, as the large scale corporations take more active and positive rotation policy. As much as 67 percent of very large corporations with five thousand employees or more answered that they actively rotate university graduates for administrative career and considered it as a means of developing their abilities. In contrast, the small firms with 100 employees or less, the corresponding proportion was only 10 percent, while 31 percent answered that they avoid rotation except for filling in vacancy. The sharp contrast can be found with college graduates on technical tracks.

2.2.6 The third element of in-career training comprises the training programs required at various stage in career or at the time of promotion. A typical case is a seminar for those at certain positions, such as Unit Chief or Section Chief. It is not uncommon that the workers are given a status rank, which is set apart from job position, and training is required at certain status rank. In some cases training is required as a

prerequisite for promotion to next job position or status rank. Most of these seminars are held at classrooms and span from few days to few weeks. The content tends to give much weight on managerial and communication skills.

Table 3

Corporate Policies Regarding Job Rotation

(%)

Firm Size (Number of Employees)	Total	Rotate as a means for ability development	Rotate when necessary	Avoid Rotation except for filling vacancies	No Response
UNIVERSITY GRADUATES					
Administrative					
5,000 or more	100.0	66.8	32.8	0.4	-
1,000 - 4,999	100.0	48.9	48.0	2.4	0.7
300 - 999	100.0	28.4	60.2	9.2	2.2
100 - 299	100.0	16.5	59.1	18.4	6.0
30 - 99	100.0	10.4	48.4	30.6	10.6
All Sizes	100.0	14.7	52.1	24.8	8.4
Technical					
5,000 or more	100.0	57.8	39.2	2.5	0.5
1,000 - 4,999	100.0	40.2	53.7	4.2	1.9
300 - 999	100.0	24.1	64.8	7.8	3.3
100 - 299	100.0	15.7	61.2	14.5	8.6
30 - 99	100.0	11.4	46.7	27.8	14.1
All Sizes	100.0	14.4	52.1	22.0	11.5
HIGH SCHOOL GRADUATES					
Clerical					
5,000 or more	100.0	54.3	42.5	3.2	-
1,000 - 4,999	100.0	39.0	55.8	4.3	0.9
300 - 999	100.0	22.3	63.7	11.6	2.4
100 - 299	100.0	14.9	59.1	21.5	4.5
30 - 99	100.0	8.0	48.1	34.3	9.6
All Sizes	100.0	11.3	51.9	29.1	7.7
Production					
5,000 or more	100.0	31.7	60.1	7.1	1.1
1,000 - 4,999	100.0	22.4	66.3	9.1	2.2
300 - 999	100.0	16.5	68.8	11.1	3.6
100 - 299	100.0	12.8	64.3	16.5	6.4
30 - 99	100.0	8.4	52.6	29.6	9.4
All Sizes	100.0	10.2	56.7	24.9	8.2

Source: Ministry of Labor, [Koyo Kanri Chosa], 1981.

2.3 Speciality Training and Self-Development Programs

2.3.1 The third category of in-firm training comprises those geared to provide specialized knowledge or skill. To the extent that certain knowledge or skill constitutes absolute prerequisite to accomplish a job, its training should be integrated into either one of the two types of training described above. That leaves, however, a wide range of knowledge and skill useful for work. In some cases, the employer may consider the training as a part of job and pay for the costs. But this type of training is sometimes given less formal recognition than the previous two. Instead, the employers tend to emphasize voluntary participation. Participants may have to pay at least a part of the cost, and frequently have to devote their leisure time. To emphasize the voluntary nature of training, some firms use the term "Self-Development."

2.3.2 This category does not exactly coincide with the notion of Off-JT, for the initial and mid-career training also have some element of Off-JT. But the survey results about the used means of Off-JT presented in Table 4 provides a rough idea of the forms of training in this category. It shows that more than half of the surveyed companies used seminars or training courses provided by independent consultants or organized inside the company. In addition, 28 percent use in-house training given by other companies, which are the manufacturers of particular equipment or in close connection. It also deserves attention that correspondence courses are used by 21 percent of firms. The role of formal schools is still limited, with the Special Training Schools being used by 6 percent of the firms, and universities and colleges even less.

2.3.3 The short-term seminars held on ad-hoc basis take various forms and cover various subjects. For non-technical workers, seminars may be held to instruct a particular managerial technique or sales techniques. Knowledges related to business law, tax or accounting are other popular subjects. For technical workers, seminars may given on new products or production techniques. The duration and the degree of formal recognition by the firm of this type of training vary substantially.

Table 4

Existing Methods for Off-JT

	Frequency (%)
Out-House Commercial Seminars	55.9
In-House Training Courses	52.0
Training Courses Given by Other Firms	28.2
Correspondence Courses	21.3
Public Occupational Training Institutions	8.5
Special Training Schools	6.2
Undergraduate/Graduate Courses (Japan)	2.9
Undergraduate/Graduate Courses (Overseas)	1.1
Others	5.8

Source: Ministry of Labor, "Report of the Survey on Corporative Education and Training," 1986.
Note: Sample survey of 2,363 business firms with 30 employees or more.

2.3.4 In some large manufacturing companies, this type of training is extended within the firm to cover advanced knowledge and organized systematically. For example, a leading steel manufacturer holds "Applied Technogoloies Course" for graduate engineers. The course comprises 28 short-period seminars, and each seminar takes three to fourteen days enrolling ten to sixty people at one time. The subjects of the seminars include: "Economics of Technology," "History of Engineering - The Case of Foundry," "Measurement and Control," "Dynamics of Manufacturing Process," and "Application of Numeric Control." The seminars are taught by specialists from inside as well as outside the company. [Nihon Nohritsu Kyokai 1990, p.410]

2.3.5 In some cases, the content of in-house training can be the state-of-the-art technology. A manufacturer of electronic and communication devices holds a "Saturday Technology College" [Gohda P.106] Lectures were given every other Saturday for six months. There are four courses: "Digital Technology," "Analogue Circuit," "Communication Technology" and "Material, Solid State and Analysis."

Application exceeded the class capacity of thrity to fifty persons by two or three times. Another example is "Engineering Workshop" at a manufacturer of heavy electronic devices [ibid p.90]. Every year about twenty students are selected among graduate engineers at around age 30. Lectures are given by about one-hundred leading experts in the company. Intensive seminars, each lasting six days, are held once a month for twelve months. This workshop is regarded as the strategic means to create future competitive edge in technology.

2.3.6 The second means of acquiring specific knowledges or skills is the correnspondence course. A list of such correnspondence courses published by the Ministry of Labor included more than thousand courses. Most of these courses are subjects of government subsidies. One-fourth in case of employees in large scale corporations, or one-third for those in medium or small scale corporations. The types and subjects of those correspondence courses are listed in Table 5. These courses are provided by private enterprises specializing in corresponding courses and non-profit organizations (Table 6). Most of these courses do not require formal education, and geared to high school graduates. But many of them are in fact used by college graduates.

2.3.7 Some of these corresponding courses lead to professional qualification accredited by the Ministry of Labor, other ministries or industrial organizations. Contrasting the Japanese and the British systems of job qualification, Dore [1989, pp.132-133] pointed out: "There are two possible approaches to the business of certifying vocational competence. One is to treat skills as discrete and miscellaneous, infinitely varied in their requirements for mastery and varied, also, in the ways in which they may be combined together in actual occupational roles. The unit breakdown of skills for testing purposes may therefore be allowed to follow the logic of the partiuclar tasks to which they relate....The alternative is the whole-role certification approach, which assumes that the way skills are combined in practice is limited, and the important thing is to certify whether or not a person has acquired one of these 'standard packages' required for standard occupational roles." According to Dore, the former 'module' approach characterizes the Japanese, and the latter 'standard packages' approach characterizes the British system. A significant implication of the difference between the two approaches lies in the relation of these qualifications with

Table 5

Correspondence Courses Recognized as Eligible for Ministry of Labour Support Grants

General: managerial	31
General: foreign	23
General: middle management (chuken)	19
Basic principles of OJT	7
Clerical, secretarial, personnel	31
Accounting, financial	47
Production control, stock management, etc.	7
Other clerical and administrative	21
Commercial, marketing and general services	103
Finance and real estate	65
Manufacturing research, development, design	45
Manufacturing processes, control & maintenance	68
Food industry	7
Printing industry	5
Steel industry	71
Manufacturing production engineering	55
Construction industry	9
Draughtsmanship, tracing	19
Agriculture and nutrition	11
Domestic appliance repair	8
Miscellaneous (statistics, maths, calligraphy, quality control, value engineering, investment analysis, etc.)	81
Personal computers	52
Micro computers	29
Other computing	11
English	85
Courses leading to state qualification: business	12
Courses leading to state qualification: technical	27
Miscellaneous and life-enhancing (Building memory power, persuasive power, intellectual vitality, etc.)	70

Source: Jiko-keihatsu, 1968, as quoted in Dore 1989.

Table 6

Provenance of Correspondence Courses Recognized as Eligible for Ministry of Labour Support Grants

Operating Agency	Operating Agencies	Computer Courses	No. of Other Technical Courses	Other Courses	Total Courses
COMMERCIAL FIRMS	51	44	140	367	551
NON-PROFIT AGENCIES					
Iron & Steel Technical College	1	0	69	0	69
College of Industrial Efficiency (Sangyo Noritsu Daigaku)	1	16	29	103	148
Japan Institute of Vocational Training (Shokugyo Kunren) Daigakko	1	0	26	0	26
Other Universities, Colleges, Schools	15	1	5	68	74
Professional & Industrial Associations	31	23	67	180	270
Japan Centre for Vocational Education (Nihon Gino Kyoiku Kaihatsu Sentaa)	1	9	38	8	55
Consumer Cooperatives Association	1	0	0	6	6
Small or Medium Enterprise Agency	1	1	2	1	4
Total	103	94	376	733	1,203

Source: Jiko-keihatsu, 1968, as quoted in Dore 1989.

formal education and job. With the latter system a particular certification is associated with particular levels of school education and a particular job. But with the former, the association can be more flexible. Therefore, it is not only high school graduates that take examination for a certain certificate. College graduate frequently takes it, even though it does not imply a new job for him.

2.3.8 The third means for this category of training is to send workers to institutions of formal education. An increasingly popular site of training is Special Training Schools, which normally admit fresh high school graduates, but also offer extention courses on the subjects related to their regular courses. Table 7 summarizes the distribution of the extention courses by subject fields and the form of instruction. It is shown that there are substantial numbers of courses in business and engineering. A large proportion of the courses in culture and liberal arts are also considered to be related to work, for they include a large number of foreign language classes. As many as half of the students in both Engineering and Business courses were currently employed (Table 8). Information about the distribution by the level of educational background is not available. It deserves attention, however, that among the students in the Business courses there were a substantial number of students already enrolled in Junior colleges or universities. Most of these students aim to obtain public qualifications in accounting or other related skills, which would place them in better position in the job market. It can be interpreted as an indication that those courses will be also useful for the college graduates already employed.

2.3.9 Nonetheless, the role of formal educational institutions in general is still limited. Table 4 above indicated that only less than 3 percent of the firms surveyed sent their employees to under-graduate or graduate couses of higher education institutions. Such a situation, however, may be changing now, as discussed in the following sections.

Table 7

Number of Extension Courses Provided by STS

	Total N. of Responding Firms (1)	Day	Night	Day and Night	Only Saturday	Holidays	Correspondence	Others
Engineering	377	98	249	13	5	1	14	-
Agriculture	2	2	-	-	-	-	-	-
Health-Related	50	40	6	1	1	-	2	-
Public Health	179	70	25	12	7	-	91	-
Education/ Social Services	20	13	5	-	2	-	-	-
Business	670	140	437	53	18	32	4	5
Home Science	934	474	351	107	46	9	1	2
Culture/ Liberal Arts	1,351	383	836	96	54	20	2	4

Note: Due to allowed plural choice, the total does not add up to (1).
Source: MESC, Report of the Survey on Special Training Schools, 1990.

Table 8

Extension Courses of STS
— Number of Students by Employment/Schooling Status —

	Total N. of Students	of which								
		Employed			Enrolled in Other School					Others
		Total	Paid by Employer	Others	Total	Senior HS	2-Year Col.	4-Year Col.	Others	
Engineering	10,698	4,575	1,533	3,042	1,842	1,093	297	373	79	4,281
Agriculture	474	206	-	206	268	262	4	2	-	-
Health-Related	2,091	698	231	467	33	12	5	-	16	1,360
Public Health	13,728	10,107	3,722	6,385	727	426	180	83	38	2,894
Education/ Social Services	1,680	1,109	33	1,076	280	-	267	13	-	291
Business	27,666	12,860	964	11,896	5,637	340	889	3,452	956	9,169
Home Science	13,375	3,982	344	3,638	513	86	155	120	152	8,880
Culture/ Liberal Arts	63,141	9,844	904	8,940	31,232	24,540	457	1,733	4,502	22,065

Source: Same as Table 7.

3 Recent Issues of In-Firm Training

The pattern of in-firm training of college graduates described above is said to have been successful. But, it is now facing an unprecedented challenge. The source of challenge is three-fold. First, technological change. Second, the shift in the role of college graudates in the firm. Third, erosion of lifetime employment.

3.1 The Changes in Demanded Knowledge

3.1.1 Most obvious factor for the challenge is the rising level of technology and the acceleration of the pace of technological development. One clear indication is the increasing number of fresh recruits with Master's degrees in technical fields. Traditionally, graduate education even in engineering departments had been considered to be mainly for those advancing to academic positions. Manufacturing firms recruited fresh graduates from undergraduate engineering departments and trained them through in-firm training programs described above. Graduate school leavers were recruited for limited research functions, and their wage were not significantly different from the college graduates at the same age. Since the end of 1970s, however, manufacturing firms became increasingly eager to recruit graduate students with Master's degree in engineering or related fields. Reflecing the increasing value attached to Master's degree, graduate courses became popular among undergraduates. Indeed, graduate school leavers with Master's degree in engineering who did not advance to the doctorate and went into employment was only 6,294 in 1980. By 1990, it has increased to 11,403. Similar increases have been observed in other technical fields: Natural sciences from 809 to 1,829; and agriculture from 730 to 1,238. Over the same period, fresh recruits with bechelors degrees in these areas even declined slightly.

3.1.2 There is also growing perception among engineers about the mismatch between college education and work. Table 9 below summarizes the results from surveys on graduate engineers about the relation between what they learned in college and the knowledges and skills required after entering the job [Mirai Kogaku Kenkyusho 1986]. The surveys were undertaken in two time-periods. In 1976, slightly less than half of the graduate engineers (age 35 years or older) responded that there was

large or absolute gap between the two. In 1986, graduate engineers of the same age giving the similar answers rose to 60 percent. The proportion was even higher at 68 percent among younger respondents. Obviously, the conceived gap has been growing rapidly in recent years.

Table 9

Conceived Gap Between
What was Learned and What is Needed

	No Gap	Slight Gap	Large Gap	Absolute Gap
1976 Survey				
35 years or older	16.2	35.6	39.4	8.1
1986 Survey				
35 years or older	10.6	29.0	46.2	14.2
34 years or less	8.1	23.8	46.0	22.0

Source: Mirai Kogaku Kenkyusha 1986.

3.1.3 Demands for advanced or specialized knowledge are also increasing in non-technical fields. One significant factor behind it is the extention of corporate activities to international scenes. Accounting auditing systems in overseas, patent law, and corporate laws are a few examples of such knowledge. So far firms respond to these needs by hiring local professional lawyers, accountants or consultants. It is evident that the firms would need their own staff with knowledges in these fields.

3.1.4 Some of the advanced and specialized knowledges may be acquired through in-firm training. In fact, the specialized training programs in some of the leading manufacturers are geared to the state-of-the-art technology as stated above, and their level may well be superior to academic institutions. But obviously, small scale firms are not equipped with such research and development ability. Moreover, even for large scale firms, in-firm training would not be sufficient to the extent that the desired knowledge or information belongs to outside the fields of the firms' traditional activity. And many firms are trying to venture in new fields. Indeed, a sample survey revealed that business firms regard "innovative ideas and imagination" and "international perspective" as becoming the most important factors to be obtained through in-firm training (Table 10).

Table 10

Desired Traits to be Obtained through Worker Education
— Sample Survey of 421 Large Scale Corporations —

Desired Traits	Past 5 Years Response (%)	Coming 5 Years Response (%)
Innovative Idea & Imagination; Sensitivity	74 (18.8)	219 (58.2)
International Perspectives	97 (24.6)	190 (50.5)
Leadership	241 (61.2)	172 (45.7)
Experiences & Knowledges in Management	226 (57.4)	166 (44.1)
Ability for Planning & Coordination	86 (21.8)	154 (41.0)
Specialized Knowledges & Experiences	224 (56.9)	152 (40.4)
Efficiency in Stylized Work	95 (24.1)	14 (3.7)
Others	2 (0.5)	3 (0.8)
N. of Responding Firms	394 (-)	376 (-)

Source: Keidanren (Japan Federation of Economic Organizations), "Opinion Survey on Employment and Human Resources Strategies to Adopt to the New Changes in Economic and Industrial Structure," 1989, p.14.
Note: Due to allowed plural choice, the percentages do not add up to 100.

3.2 Changing Role of College Graduates

3.2.1 The second source of challenge is the change in the role of college graduates in the workplace. The traditional career of a college graduate in a company was described earlier. Typically, he would be hired not as a professional manager or an independent engineer. He would experience various jobs in the company and accumulate experiences of company-specific knowledges. Then at certain age, he would be promoted to middle level management and later to even higher position. The specialized knowledges obtained in the university therefore did not have to be directly relevant to the work. Even in the course of career, being too much absorbed into a particular type of knowledge can sometimes become a negative factor for promotion, for it is considered to hinder general perspectives necessary for a manager. This is certainly the case for the graduates from non-technical fields, but to a lesser extent the case even for the gradautes from engineering

or related fields. For rendering managers in this mold, the pattern of in-firm training based mainly on the combination between OJT and job-rotation was not only enough but also most efficient.

3.2.2 But such a mechanism was possible only because there were significantly fewer college graduates relative to the workers to be supervised. It was certainly the case when higher education was still in the "elite stage," enrolling less than 10 percent of the population of the same age. Even after higher education became rapidly popular, the traditional role did not change at least for a while. In Japan, enrollment rate in four-year college reached the 30 percent level by early 1970s. Because it was also the time when the baby-boom generation reached the college-going age, large numbers of college graduates entered the labor market every year. In the work places, it only implied expansion of young white-collar workers to be supervised. The demand for supervisers therefore increased. But, the long-run effect of mass higher education has been finally reaching to the mechanism of career itself. Now the first cohort of large college graduates have reached their forties. The prospect of this, and the following, generation to obtain traditional supervising position is becoming remote. Instead, many of them will have to work as a specialist in some field.

3.2.3 Indeed, according to the survey results summarized in Table 10 above, "leadership" or "experiences and knowledges in management" are losing their importance as the traits to be obtained through in-firm training. Obviously, these factors necessitate a new type of training.

3.3 Uncertainty About Lifetime Employment

3.3.1 The third source of challenge to the present mode of training is the uncertainty about the future of the lifetime employment system itself. It was stated above that the present pattern of in-firm training has been the basis of the training system by providing incentive for the workers to stay in the firm and receive necessary training. There are indications, however, that worker mobility is rising even among college graduates.

3.3.2 It has been caused by a number of factors. For one thing, the rapid shifts in economic structure and "restructuring" of corporate activities, many firms face shortage of skilled workforce in strategic fields. Engineers specializing in research and development in computer softwares, solid-state or any fields of advanced technology are good examples. According to a survey on large scale corporations about planned measures for securing workforce in new areas of activity revealed that especially with technical R & D staff, 33 percent were planning to recruit trained workers from other firms, 52 percent were planning to recruit fresh graduates. Those expecting in-house training was only 13 percent (Appendix Table 2). Even in such traditional fields as banking, specialists in international money market are subjects of "head-hunting." The mobility of this sort has diminished the stigma associated with moving from a company to another.

3.3.3 More negative factor eroding lifetime employment is the shift of relative weight of workforce from younger to older generation. It was stated above that available supervising position for college graduates have been becoming scarce. In a sense, it is related to more fundamental shifts in age-structure of workforce. Japan's lifetime employment system spread in the postwar economic growth when firms were expanding employment. The resulting age structure of the shape of a pyramid, with relatively few workers at older age-brackets, made it possible to promote workers as they grew older. It was one of the integral elements of lifetime employment. But as number of workforce at younger generation stabilized, the age-structure had to become more straightened, thus threatening the age-promotion practice. Now firms face relative redundancy of middle- and high-age workforce. Keeping those workers is becoming a financial burden.

3.3.4 At the same time, the rapid shifts in economic structure make it inevitable to move the workforce from sectors of declining demands to other sectors. The Oil-Crisis in the mid-1970s and the following restructuring of the economy was an unprecedented challenge to the Japanese firms in this regard. It has to be noted that lifetime employment system will still remain as the basic pattern of employment of core workers in large scale companies, such as college graduates. The Japanese firms survived through this crisis by shifting workforce from a department to others, thus succeeding in not discharging many workers as anticipated. The experience is said to be an

indication that the lifetime employment system in Japan, despite its ostensible rigidity, can in fact induce flexibility. Statistics indicate that the average lengths of service in a single company at middle age brackets have slightly rose in past ten years. It indicates that the coverage of lifetime employment have spread from large scale companies to some middle- and small-scale companies, reflecting their improvement in long-run financial stability. Nonetheless, the prospect of a typical worker for the traditional pattern of promotion has been endangered. The likelihood for middle- or high-age workers to actively seek a new job has not risen much, probably because of their vested interests.

3.3.5 These changes have been reflecting upon young college graduates, whose mobility has been steadily on the rise in recent years. A questionnaire survey on working college graduates revealed that 15 percent of the college graduates after second year of graduation have already experienced a change in employer [Rikuruto 1991, p.3]. Meanwhile, 25 percent of employers responded that the number of college graduates quitting the job within three years has been increasing, compared to 15 percent that answered decreasing. Now corporate human resources sections and recruitment service companies are talking about the "second fresh graduates market" geared to those seeking entry to the second employment opportunity after graduation. Obviously, the regimental procession along school-employment-career path has been threatened at the entrance level.

3.4 Needs for Individual Model of Training

3.4.1 The factors described above are likely to affect both the needs and underlying conditions for continuing graduate education in Japan. It has to be emphasized that to the extent that lifetime employment remains as the basic mode of employment, the corporate mode of training consisting mainly of OJT in combination with job rotation will keep to be the core of continuing graduate education. It is still considered to be effective and efficient. But it may not be sufficient. The challenges described above are being felt, and it is clear that they are making the existing patterns less omnipotent than before. There are growing needs for adding a new mode of training that deviates from the traditional ones.

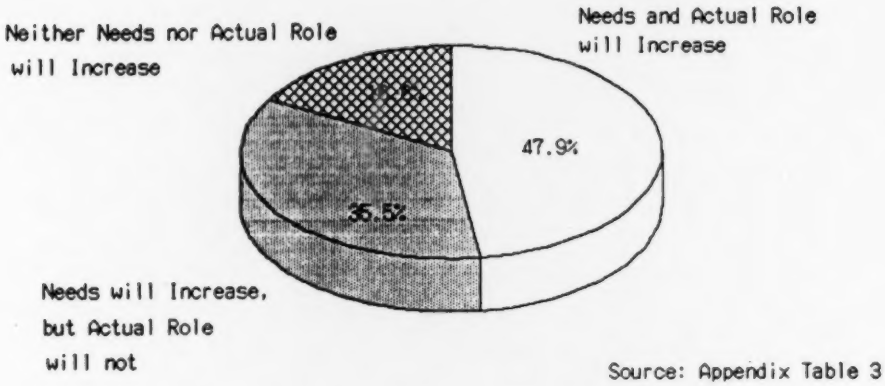
3.4.2 First, as stated above, the content of training should be less firm-specific and more advanced and specialized in a particular field of skill or knowledge. Second, there will be a wide variety of the demanded special knowledge, and consequently the type of training. Unlike the firm-specific knowledges and skills accumulated in the workplace, this type of training will not be effectively obtained in the workplace. Utilizing resources outside the workplace, or outside the company, becomes essential. Third, it will erode the effectiveness of the training that starts with induction training and evolves to the combination between training with job rotation. The needed pattern of training will have to be less uniform and more individualized. The new types of knowledge will not be immediate prerequisites for accomplishing the existing work. Thus it will become difficult for the firm or the workplace to force training; individual workers must be interested and motivated for the training. At the same time, to the extent that the training becomes less firm-specific and the prospect of labor mobility increases, the firm will become less willing to invest on the training. Individual workers will have to contribute to the training, expecting to reap the greater proportion of the benefit from it. All these factors appear to point to the direction of the individual, rather than the corporate, mode of continuing graduate education.

3.4.3 In fact, recent changes in in-firm training - particularly the popular use of correspondence courses and outside seminars under "Self-Development" schemes discussed in Section 2 - indicate that the new elements are already being added to the traditional ones.

3.4.4 It has to be pointed out, however, that further development of the individual mode of training should encounter a number of considerable obstacles. A questionnaire survey by Japan Federation of Economic Organizations on major corporations asked the needs of Off-JT, and the results are presented in Figure 2. As much as 83 percent of the surveyed corporations responded that the needs for Off-JT would increase, with the remaining 17 percent not admitting the needs. But 36 percent of the former predicted at the same time that the actual role of Off-JT would not increase. In all, slightly more than half of the respondents thought it unlikely that, however the potential needs, the Off-JT will gain significance.

Figure 2

Predicted Needs for and Actual Role of Off-JT in Future


Neither Needs nor Actual Role will Increase
Needs and Actual Role will Increase
47.9%
36.5%
Needs will Increase, but Actual Role will not

Source: Appendix Table 3

3.4.5 An obvious, and probably the most serious, problem for the individual mode of training will be its costs. The costs consist of not only the direct costs, but also the indirect costs in the form of foregone working hours. Even though the direct costs of some type of training can be considerable, it is the indirect costs that may reach a prohibitive level. According to the Ministry of Labor survey on business firms, as much as 74 percent of the respondents listed the time of trainee as a limiting factor of Off-JT (Table 11). Direct costs ranked as a distant second, quoted by only 30 percent (plural response permitted). It is also remarkable from this table that lack of facilities, teaching staff or institutions are quoted by only small proportions of respondents. How to reduce the cost of Off-JT in the form of foregone working time and who should bear the burden would remain as a critical issue for the future of continuing graduate education.

Table 11

Limiting Factors of Off-JT

Quoted Limiting Factors for Off-JT	(%)
Time of Trainee	74.1
Costs	29.6
Organization for Training	16.2
Teaching Staff (In-House)	16.1
Facility (In-House)	11.0
Technical Expertise in Training	9.3
Lack of Training Institutions	8.2
Possibility of Resignation after Training	6.9
Lack of Support from Top-Management	4.1

Source: Ministry of Labor, "Report of the Survey on Corporative Education and Training," 1986.
Note: Sample survey of 2,363 business firms with 30 employees or more.

3.5 Expectation on Higher Education Institutions

3.5.1 It is uncertain at this point how fast, and to what extent, the demands for individual modes of Off-JT for college graduates will expand. It is also not clear what educational institutions would respond to such demands. As stated above, the role of higher education institutions in continuing graduate education has been, so far, limited. But there appears to be a growing awareness from business firms of the opportunity to utilize the existing capacities in higher education institutions.

3.5.2 Recently an opinion survey was undertaken on four-hundred and twenty-one large size business corporations to assess the problems of Off-JT and the potential means to achieve it. Table 12 summarizes the answer as to what the corporations thought important as a condition for promoting Off-JT. Plural answers were allowed, and the figures in the table indicate the frequency that each item was quoted. While 61 percent of the respondents quoted "tax or financial incentives to workers," a considerable number of firms also quoted more active enrollment of higher education institutions. "Active industry-university exchanges" and "increased acceptance of the workers to undergraduate and graduate courses of universities" were selected by 42 and 35 percent respectively.

Table 12

Desired Means for Promoting Off-JT
— Sample Survey of 421 Large Scale Corporations —

Desired Means	Frequency	(%)
Tax/Financial Incentives to Workers	233	(60.7)
Active Industry-University Exchanges	163	(42.4)
Extended Acceptance to Universities/Graduate Programs	135	(35.2)
Establishment of Public Industrial Training/Research Centers	106	(27.6)
Promotion of Private Industrial Training Firms	36	(9.4)
Upgrade of Training Contents in Public Skill Training Centers	34	(8.9)
Shortened Work-Hours	30	(7.8)
Others	1	(0.3)
N. of Responding Firms	384	(-)

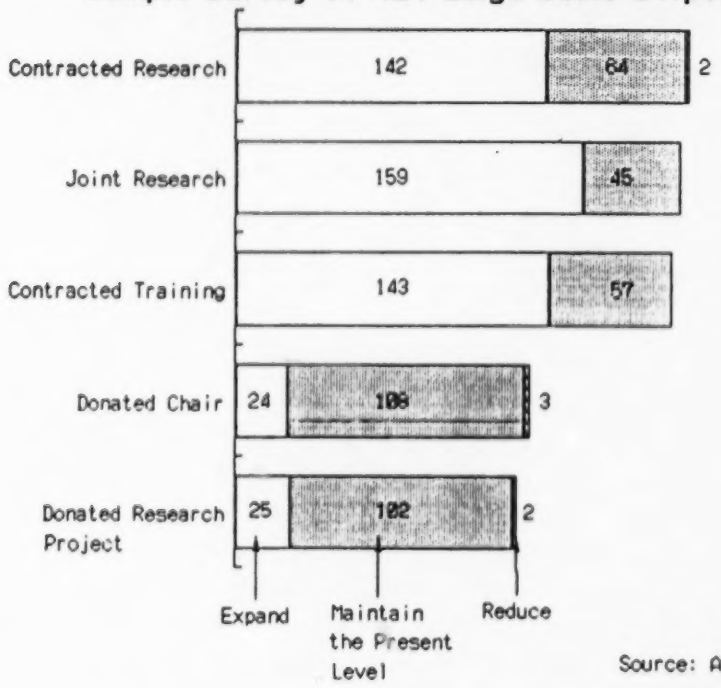
Source: Keidanren (Japan Federation of Economic Organizations), "Opinion Survey on Employment and Human Resources Strategies to Adopt to the New Changes in Economic and Industrial Structure." 1989, p.17.
Note: Due to allowed plural choice, the percentages do not add up to 100.

3.5.3 The same survey also asked whether the business firm has already, or intends to have, an active relation in various forms with higher education institutions, and if they have, whether they want to expand or reduce the present level (Figure 3). To the question about the training of their employees contracted to higher education institutions, 143 firms, or one-third of the surveyd firms answered that they wish to start or expand the present level. Including those who have already started such program and wish to maintain the present level, the corporations that have some experience or plan to engage in such a form of cooperation with higher education institutions amount to about a half of the surveyed corporations. Moreover, about one-third of the surveyed corporations answered that they wished to expand the number or size of research projects contracted to higher education institutions. Including those

who wish to maintain the present level, about half were favorable to contracted research. Almost the same can be said about the attitude of the corporations as to the joint research projects with universities. It should be noted that, a contracted research or joint research project typically contains training for the employees of the involved firm as an integral element. In contrast, donated chairs or donated research projects are relatively unpopular. It indicates that the business corporations are more positive about the type of cooperation with universities that would benefit them, and training of the employees counts as a very significant factor.

Figure 3

Planned Cooperation with Higher Education Institutions
Sample Survey of 421 Large Scale Corporations



Source: Appendix Table 5

4 CONTINUING PROFESSIONAL EDUCATION AND HIGHER EDUCATION INSTITUTIONS

While the previous sections described what happend outside higher education, the present section outlines recent changes in higher education institutions to fascilitate continuing graduate education.

4.1 Government Policies

4.1.1 In recent years the government has been increasingly aware of the needs of continuing education for working adults. In the Special Education Council, which set up by the Cabinet in 1984 for a thorough reevaluation of the educational system in Japan, one of the major issues was life-long education. Specifically regarding training for white-collar workers, the Council's Second Report, released in 1986, stated as follows:

> So far, the business enterprises in Japan have sought to form skill among the workers through exposing them to various tasks in the working place, or by On-the-Job-Training.
>
> However, the exclusive dependence upon OJT has become increasingly inadequate to develop abilities to adopt to the changes caused by such structural changes as the advances in micro-electronics and other technologies, introduction of information technologies and accompanying qualitative shifts in job contents, aging of the work force, and the increasing female workers. That will necessitate formation of greater intellectual skills through occasional Off-the-Job-Training taking place at various stages of one's working life. Especially lacking at present is the training opportunities for the white-collar workers in professional, technical or clerical jobs, and those for female workers. Efforts should be made to develop life-long occupational training for workers. (Part 2, Chapter 5)

From such perspective, it proposed among others to "redevelop under-graduate and graduate courses in higher education institutions as the place for adults to develop their skill." (idem.)

4.1.2 Right after the Special Council on Education issued its final report and dissolved in 1987, the government established the University Council under the Ministry of Education, Science and Culture. The Council set up several subcommittees, including Graduate Education Subcommittee, which subsequently was assigned to reevaluate graduate education. In 1988 it released its first report titled "Toward A Flexible Graduate Education System." The report recognized increasing needs of various types of graduate studies, not only for training of academic manpower but also as a place for retraining of working adults, and proposed to repond to this challenge by inducing greater flexibility and variety in graduate education. Specifically the report suggested a few changes in chartering standards, some of which had direct relevance to retraining working college graudates. Most significant among them was a change in course requirements making it possible to set up a Master's course consisting entirely of night classes.

4.1.3 Following the report, MESC revised in 1989 the Chartering Standards for Graduate Education. Some of the changes were significant from the perspective of continuing education for working adults. First was the addition of a clause providing the basis for Master's courses that consist entirely of evening classes. A related change was made so that such courses may set standard length of study at longer than two years. A tentative change towards this direction had been made previously, allowing one year of the two year residency requirement to be satisfied by night-courses. In a sense, the revision of this time pursued this direction further. But it also implied a conceptual shift about graduate education, for it would acknowledge for the first time a Master's degree completed on part-time basis. Second, a significant change was also made on admission requirements for Doctoral courses. Previously it was essential that the candidate should have a Master's degree, but the change made it possible to substitute it with demonstrated ability in research. This opened a way for those who accumulated experiences in the industry to obtain a doctorate in a shorter period. Third, the mandatory requirement of a thesis before obtaining the Master's degree was removed. This would open a possibility of establishing Master's courses primarily targetted at professional graduate education.

4.1.4 Subsequently, the Graduate Education Subcommittee released in the summer of 1991 a proceeding report, this time focusing upon the quantitative aspects of graduate education. It recognized expanding potential demands for graduate education arising from (i) the rising levels of academic researches and that require increased academic manpower , (ii) the need for highly specialized personnels in industry and the needs for retraining of personnels, and (iii) the needs to expand educational opportunities for foreign students. The report then analyzed the trends in the demands for graduate education. With respect to retraining of college graduates, it stated as follows:

> At present, the number of working adults formally enrolled in graduate courses is not large relative to the total enrollment. But even that number is steadily on the rise, particularly after introduction of special admission requirement for working adults.
>
> Meanwhile, graduate courses have informal function in recurrent education through such activities as open seminars, admission of trainees from the industry, or supervision of doctoral dissertation submitted from researchers in the industry. It should be also noted that the graduate courses entirely or partly consisting of evening classes have gained popularity. The recent entrants include not only those sent by their employers, but also those who chose to attend by their own initiative wishing to "refresh" their professional ability. These facts indicate the existence of strong desire to learn among working adults.
>
> It is therefore envisaged that the demands for recurrent education catering to working adults should grow even further, if the learning forms and contents of graduate couses gain greater variety and flexibility while the relation between graduate education and in-firm training becomes closer.

Based on the assessment, the council proposed to double the enrollment in graduate courses by the year 2000.

4.1.5 The same report also suggested that various concrete measures should be considered in future in order to substantiate graduate education for working adults. It indicated, for example, to create standard curricula for part-time graduate students that last more than the present norm of two-years. Another suggested change was relaxation of

chartering standards that would facilitate establishment of branch classrooms built close to, or within, the industrial centers where many of the potential students work. Yet in another move, the MESC organized in 1990 a committee to study continuing education for graduate engineers. What these moves will produce in future remain to be seen.

4.1.6 Another direction of policy change is being sought in developing and systematizing the professional qualifications for college graduates. At present, Japan has numerous professional certificates or qualifications that are accredited or granted by central government agencies, professional associations and other non-profit bodies, or sometimes by private firms. Building upon this basis, a working committee under the Ministry of Labor recently proposed a "Unit-Master Degree System" of professional training [Report of the Committee for Appraising Future Professional Ability Development Systems, August 15, 1990]. This scheme purports to develop specialized abilities of white collar workers in such fields as accounting or finance. Under this system, potential candidates would take course works offered by existing universities or Special Training Schools. In future, graduate level institutions and televised networks may be established to supplement the existing courses. A proposed Manpower Development Organization would accredit course works with given standards. The accredited courses are then transferred to basic "Units." After accumulating a number of the basic "Units" the candidate will be awarded a qualification tentatively called "Master." The qualification, however, does not entail academic status as the conventional Master's degree conferred by higher education institutions. The same committee also proposed an information service based on a database of the opportunities for continuing professional education. These plans are still in the stage of formulation.

4.2 Changes in Higher Education Institutions

4.2.1 Partly realizing the emerging social needs, and partly stimulated by the policy changes, individual universities and colleges have started to offer opportunities of continuing education for working adults in various forms. Such activities can be categorized into three classes: (i) non-credit extention courses; (ii) informal training through contracted training and other forms of university-business cooperation programs; and (iii) admission to graduate courses.

4.2.2 Non-credit extention courses provided by higher education institutions have increased dramatically in recent years. The number of courses more than doubled from about one-thousand and two-hundred in 1978 to almost three-thousand in 1988. Seventy-five percent of the universities and colleges in Japan were providing some form of extention courses in 1988, enrolling some 369 thousand persons in total. Many of these courses, however, are geared to those seeking cultural enrichment in such fields as liberal arts, sports, foreign languages. The length of the courses tends to be short, the average being only 15 credit hours. Average size of class is as many as 130 persons. Most of them set the targetted audience as "general public."

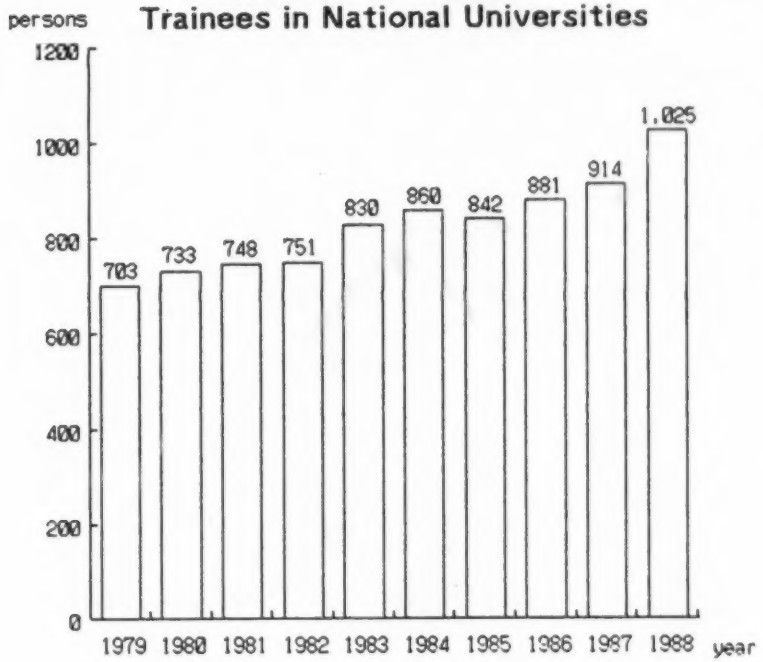
4.2.3 Nonetheless, there were almost four-hundred courses on specialized and professional subjects. Some of these courses extend beyond 30 credit hours. Some universities offer quite intensive non-credit training courses in such fields as advanced or information technology targetting at graduate engineers. In the case of Toyama University, for example, the Regional Technology Development Center organized in 1990 three Advanced Technology Courses, each covering Mechatronics, Electronic Devices and Information Processing. The individual courses enroll ten to fifteen students. Each curricula comprised 52 hours, spreading over two weeks. The students were charged tuition of the amount equivalent to about four-hundred to seven-hundred U.S. dollars.

4.2.4 Informal training of employees through contracted training or other cooperation schemes between the university and the industry is not necessarily new. Many business firms have sent their employees to universities on short-term basis to participate in research project. The sent employees may have been registered as a non-degree student, but sometimes they were not given official status at the university. In the past few years, the scale of government-university cooperation have increased dramatically, partly reflecting the needs for additional funds in the university and partly the government policies to encourage close ties with the industry. The number of contracted trainees in national universities and colleges have increased in recent years (Figure 4). But even more important, the number and amount of academic research grants from business firms have increased dramatically in recent

years. Many of these grants entail some form of involvement by employees of the donor company, thus functioning as a means of training in advanced research.

Figure 4

Changes in Contracted Trainees in National Universities



Source: MESC

4.2.5 Admission of working college graduates into formal graduate courses have increased in recent years. In Section 4.1 it was stated that the change in Chartering Standard made it possible to offer a gradaute course consisting entirely or partly of evening classes. Based on the new provision, three all-evening courses and twenty day-and-evening courses were created by 1989 (Table 13). Many of these courses were set up in national universities. With respect to the fields of study, they were evenly distributed among Engineering, Social Sciences and Education. The revision of the Chartering Standard also made it possible to admit qualified working college graduate to the Doctor's course without requiring a Master's degree. The universities applying this new provision numbered fifty-three in 1989. These move represent the growing readiness to accept working adults to the existing graduate courses.

Table 13

Graduate Departments Receiving Continuing Education Students
As of May 1989

	N. of Departments					N. of Institutions
	Total	Engineering	Social Sciences	Education	Others	
Evening Course						
National	2	-	1	1	-	1
Local Public	0	-	-	-	-	0
Private	2	1	-	-	1	2
Total	4	1	1	1	1	3
Day & Evening Course						
National	20	4	6	8	2	17
Local Public	1	-	1	-	-	1
Private	2	1	1	-	-	2
Total	23	5	8	8	2	20
Special Admission						
National	36	17	8	9	2	32
Local Public	5	1	4	-	-	4
Private	20	6	12	1	1	17
Total	61	24	24	10	3	53

Source: MESC.

4.2.6 At the same time, graduate courses of new types have been set up with curricula targetting at more applied aspects of research. Traditionally the Japanese graduate education has been organized around the Chair system, which is the unit of research, under-graduate and graduate education. Arguably it has deprived flexibiliy to an extent from graduate education. In recent years, however, a few "independent" graduate schools and courses were established outside the traditional Chair system without associated under-graduate courses. Some of these courses are established independently, and some others are attached to cooperate research centers in the national universities. For example, Hokuriku Graduate School for Advanced Science and Technology has been just created as a completely new institution together with a similar institution at Nara. The Hokuriku Graduate School covers such frontier fields as information sciences and material sciences. The curriculum emphasizes forming basic abilities for independent research, but not necessarily strictly academic in a traditional sense, targetting both fresh graduates and working graduates with various backgrounds. Another example is The Center for Advanced Technology at the University of Tokyo. The Center is financed with close cooperation with the industry, and will start accepting graduate engineers to its own graduate courses.

4.2.7 Graduate courses with innovative curricula have been created recently also in the fields of Social Sciences. Graduate courses in Social Sciences in Japan have been strictly academic with very minor exceptions. The College of Law at the University of Tokyo, for example, has had graduate courses that have been producing leading academics in the field. In 1991, however, the College decided to create a new graduate course for educating legal experts in such field as Business and Law. The curriculum will emphasize practical aspects and leads only the Master's degree. It is planned that the course will soon start accepting about forty working adults. Similar attempts have been made in various forms, and start attracting students. How these graduate courses will be accepted and demanded remains to be seen. It is not conceivable that the graduate degrees in Social Sciences will become a new professional qualification required for employment or promotion. Nonetheless, the value of graduate studies at least in some fields may become recognized soon in some form.

5 CONCLUSIONS

In the framework set forward in Section 1, education and training of working college graduates in Japan appears to be characterized as the Corporate Model as opposed to the Individual Model. The training often takes place within the company and in working hours; focuses upon specific knowledges and skills closely related to the present task and the company; and the cost is paid entirely by the company. In so far as the training remains as one belonging to the pure Corporate Model, the training will be demanded and supplied within the firm. If it have been and will remain true, higher education institutions will have no other role than sending fresh graduates to the fimrs.

The close analysis revealed, however, even at present there are many factors incorporated to the practice of training for college graduates that are deviating from the Corporate Model. Moreover the analysis in Section 3 pointed out that, arguably, the Corporate Model has been becoming increasingly insufficient to accommodate the technological and social changes. Attachment of some factors of Individual Model of training will then become inevitable. It does not necessarily imply that the whole pattern of training will shift away from the Corporate Model and towards the Individual Model. Indeed, many of the elements of the Corporate Model will remain and sometimes become more powerful. Nor does it imply that the demands for the training of Individual Model will be formed naturally from the industry or individuals. The demand will arise only when proper forms of training will be supplied.

It is the challenge that the government policies and higher education institutions are facing. Various councils commissioned by the government spent some time in recent years to examine the issue and proposed some specific measures to open university to the needs of educating working graduates. Some of those proposals were translated into specific policy measures such as the changes in Chartering Standards of graduate schools. Many universities responded to the social needs and government initiatives. Consequently, informal and formal opportunities of education and training for working college graduates have been gradually opened. Nonetheless, the move is still in its infancy and its future ramains to be seen.

If there is anything clear, it is that the future development of higher education in this direction will be critical not only for the future economy, but also for the relevance of the Japanese universities and colleges to the society.

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7 APPENDIX TABLES

Appendix Table 1

Occupational Distribution of Employed Higher Education Graduates

	Total	Profes-sional	Adminis-trative	Clerical	Sales	Others
Fresh HE Graduates						
4-Year Institutions						
1965	100.0	43.6	1.8	33.9	14.9	5.8
1970	100.0	40.3	1.5	31.4	23.2	3.6
1975	100.0	39.1	0.8	35.5	19.1	5.5
1980	100.0	40.1	0.5	33.8	21.4	4.2
1985	100.0	41.7	0.3	33.3	21.0	3.7
2-Year Institutions						
1965	100.0	41.0	1.2	42.5	6.4	8.9
1970	100.0	43.5	0.7	42.9	6.7	6.2
1975	100.0	41.6	0.3	48.0	3.6	6.5
1980	100.0	37.2	0.1	52.6	4.6	5.5
1985	100.0	32.8	0.1	55.8	6.3	5.0
All HE Graduates						
1968	100.0	34.9	10.2	27.3	12.4	15.2
1971	100.0	34.7	9.8	27.4	13.1	15.0
1974	100.0	31.4	10.1	26.5	14.0	18.0
1977	100.0	33.5	9.1	27.1	15.2	15.1
1979	100.0	31.2	9.5	24.9	15.4	19.0
1982	100.0	32.6	8.8	26.1	15.4	17.1

Source: School Fundamental Survey 1965, 1970, 1975, 1980 and 1985. Labor Force Survey 1968, 1971, 1974, 1977, 1979 and 1982.

Appendix Table 2

Planned Means for Obtaining Required Personnels for New Operations
— Sample Survey of 421 Large Scale Corporations —

	N. of Responding Firms	Distribution by Means (%)				
		Total	Fresh Graduates	In-House Training	Recruiting Experienced Worker	Others
Technical R&D	180	100.0	52.2	13.3	32.8	1.7
Planning	107	100.0	11.2	74.8	10.3	3.7
Sales/Operation	15	100.0	46.7	46.7	0.0	6.6

Source: Keidanren [Japan Federation of Economic Organizations], "Opinion Survey on Employment and Human Resources Strategies to Adopt to the New Changes in Economic and Industrial Structure." 1989, p.3.

Appendix Table 3

Predicted Needs for Off-JT

(%)

	Total	Need for Off-JT will: Increase and Actual Emphasis will: Rise	Remain the Same	Not Increase
All Respondents	100.0	47.9	35.5	16.6
Classified by:				
Industry				
Construction	100.0	46.4	40.3	13.3
Manufacturing	100.0	46.2	37.0	16.8
Transport/Communication	100.0	46.4	36.2	17.4
Trade/Retail/Restaurant	100.0	52.9	32.1	15.0
Banking/Insurance/Real Estate	100.0	52.7	35.7	11.6
Services	100.0	45.6	33.9	20.5
N. of Employees				
1,000 or more	100.0	54.1	33.7	12.2
500 ~ 999	100.0	57.1	31.6	11.3
300 ~ 499	100.0	59.2	31.9	8.9
100 ~ 299	100.0	51.7	37.9	10.4
30 ~ 99	100.0	46.0	35.1	18.9

Source: Ministry of Labor, "Report of the Survey on Corporative Education and Training," 1986.
Note: Sample survey of 2,363 business firms with 30 employees or more.

Appendix Table 4

Existing Forms of Training Taken in Business Firms

(in %)

	Total	OJT only	OJT & Off-JT with Emphasis on		Off-JT only	None
			OJT	Off-JT		
All Respondents	100.0	36.6	45.5	8.2	4.5	5.2
Classified by:						
Occupation						
Engineer	100.0	24.0	54.0	15.4	3.6	3.0
Manager	100.0	20.8	48.1	12.0	13.1	6.0
Superviser	100.0	26.2	54.8	10.1	4.9	4.0
Clerk	100.0	42.9	46.5	4.4	1.7	4.5
Sales	100.0	33.4	52.9	7.7	2.1	3.9
Craftman	100.0	47.8	41.0	4.9	1.9	4.4
Part-Time	100.0	73.6	11.7	2.1	0.5	12.1
Industry						
Construction	100.0	36.9	50.9	5.6	4.8	1.8
Manufacturing	100.0	39.7	42.1	9.2	3.7	5.3
Transport/Communication	100.0	42.1	38.7	7.1	4.7	7.4
Trade/Retail/Restaurant	100.0	35.1	48.3	6.2	5.5	4.9
Banking/Insurance/Real Estate	100.0	24.2	55.3	8.8	7.2	4.5
Services	100.0	32.4	48.2	9.1	4.4	5.9
N. of Employees						
1,000 or more	100.0	13.8	71.8	9.9	2.5	2.0
500 ~ 999	100.0	18.0	65.6	10.6	4.0	1.8
300 ~ 499	100.0	24.5	59.6	7.2	4.8	3.9
100 ~ 299	100.0	29.4	52.8	9.1	5.1	3.6
30 ~ 99	100.0	40.8	41.2	7.7	4.4	5.9

Source: Ministry of Labor, "Report of the Survey on Corporative Education and Training," 1986.

Note: Sample survey of 2,363 business firms with 30 employees or more.

Appendix Table 5

Future Plans in Cooperation with Higher Education Institutions
— Sample Survey of 421 Large Scale Corporations —

	N. of Responding Firms	Reduce	Maintain the Present Level	Expand
Contracted Research	208	2	64	142
Joint-Research	204	0	45	159
Donated Chair	135	3	108	24
Donated Research Section	129	2	102	25
Contracted Training	200	0	57	143

Source: Keidanren (Japan Federation of Economic Organizations), "Opinion Survey on Employment and Human Resources Strategies to Adopt to the New Changes in Economic and Industrial Structure." 1989, p.13.

Appendix Table 6

Extension Courses of STS
— Number of Students by Age and by Field —

	N. of Students	Distribution by Age (%)							
		Total	Below 17	18-21	22-29	30-39	40-49	50-59	Beyond 60	Unknown
Male & Female										
Engineering	10,698	100.0	6.3	29.9	37.3	16.2	6.6	2.1	0.6	1.0
Agriculture	474	100.0	56.5	0.0	0.0	18.6	15.0	9.9	0.0	0.0
Health-Related	2,091	100.0	0.0	13.3	31.7	24.0	15.4	4.8	0.2	10.6
Public Health	13,728	100.0	23.7	51.5	16.4	5.6	1.8	0.7	0.3	0.0
Education/ Social Services	1,680	100.0	3.6	30.1	32.3	16.3	11.0	4.9	0.4	1.4
Business	27,666	100.0	9.3	19.9	41.2	21.1	6.5	1.7	0.3	0.0
Home Science	13,375	100.0	3.2	22.5	35.6	14.2	11.1	8.8	4.5	0.1
Culture/ Liberal Arts	63,141	100.0	46.2	22.7	13.6	8.5	4.2	1.8	0.9	2.1
Male										
Engineering	7,073	100.0	7.5	26.4	39.2	16.3	6.4	2.2	0.8	1.2
Agriculture	389	100.0	52.7	0.0	0.0	20.8	14.4	12.1	0.0	0.0
Health-Related	283	100.0	0.0	35.3	30.7	20.1	7.1	5.7	1.1	0.0
Public Health	3,416	100.0	22.5	51.3	19.6	4.6	1.5	0.4	0.1	0.0
Education/ Social Services	204	100.0	12.3	18.6	32.2	17.2	11.8	5.9	2.0	0.0
Business	13,649	100.0	6.0	15.6	43.5	25.3	6.5	2.5	0.5	0.1
Home Science	568	100.0	2.5	65.7	19.0	4.8	3.9	1.8	2.3	0.0
Culture/ Liberal Arts	36,264	100.0	48.8	23.4	10.7	9.6	3.9	1.2	0.6	1.8
Female										
Engineering	3,625	100.0	4.0	37.0	33.6	15.9	7.0	1.9	0.2	0.4
Agriculture	85	100.0	74.1	0.0	0.0	8.2	17.6	0.0	0.0	0.1
Health-Related	1,808	100.0	0.0	9.8	31.8	24.6	16.6	4.7	0.1	12.4
Public Health	10,312	100.0	24.1	51.5	15.4	6.0	1.9	0.8	0.3	0.0
Education/ Social Services	1,476	100.0	2.4	31.6	32.3	16.1	10.8	4.7	0.1	2.0
Business	14,017	100.0	12.4	24.0	39.2	17.0	6.4	0.9	0.1	0.0
Home Science	12,807	100.0	3.2	20.6	36.3	14.6	11.5	9.1	4.6	0.1
Culture/ Liberal Arts	26,877	100.0	42.7	21.8	17.7	7.0	4.6	2.6	1.3	2.3

Source: MESC, Report of the Survey on Special Training Schools, 1990.

Appendix Table 7

Extension Courses of STS
— Number of Students by Age and by Field —

	N. of Students	Distribution by Age							
		Total	Below 17	18-21	22-29	30-39	40-49	50-59	Beyond 60	Unknown
Male & Female										
Engineering	10,698	10,594	674	3,204	3,993	1,730	705	222	66	104
Agriculture	474	474	268	0	0	88	71	47	0	0
Health-Related	2,091	1,867	0	278	662	501	321	101	4	224
Public Health	13,728	13,728	3,256	7,064	2,256	771	243	99	39	0
Education/ Social Services	1,680	1,653	60	505	543	273	184	82	6	27
Business	27,666	27,666	2,560	5,494	11,431	5,842	1,786	476	77	0
Home Science	13,375	13,375	429	3,011	4,759	1,903	1,491	1,180	602	0
Culture/ Liberal Arts	63,141	61,826	29,188	14,351	8,611	5,352	2,639	1,142	543	1315
Male										
Engineering	7,073	6,986	530	1,864	2,774	1,155	450	153	60	87
Agriculture	389	389	205	-	-	81	56	47	-	0
Health-Related	283	283	-	100	87	57	20	16	3	0
Public Health	3,416	3,416	768	1,754	668	157	51	15	3	0
Education/ Social Services	204	204	25	38	66	35	24	12	4	0
Business	13,649	13,649	823	2,131	5,937	3,456	889	346	67	0
Home Science	568	568	14	374	108	27	22	10	13	0
Culture/ Liberal Arts	36,264	35,583	17,708	8,491	3,867	3,468	1,402	446	201	681
Female										
Engineering	3,625	3,608	144	1,340	1,219	575	255	69	6	17
Agriculture	85	85	63	-	-	7	15	-	-	0
Health-Related	1,808	1,584	-	178	575	444	301	85	1	224
Public Health	10,312	10,312	2,488	5,310	1,588	614	192	84	36	0
Education/ Social Services	1,476	1,449	35	467	477	238	160	70	2	27
Business	14,017	14,017	1,737	3,363	5,494	2,386	897	130	10	0
Home Science	12,807	12,807	415	2,637	4,651	1,876	1,469	1,170	589	0
Culture/ Liberal Arts	26,877	26,243	11,480	5,860	4,744	1,884	1,237	696	342	634

Source: MESC, Report of the Survey on Special Training Schools, 1990.